

In the Claims:

1. (Currently Amended) A process for forming dual gate oxides for use in high performance DRAM systems or logic circuits, the process comprising using a shadow area to control gate oxide thickness at active area (AA) corners adjacent a shallow trench isolation (STI) region, the process comprising:

providing a substrate having formed thereon an active area and the shallow trench isolation, the shallow trench isolation being filled with an oxide material having an exposed surface protruding above adjacent areas of the substrate; [[and]]

affecting a first low dose angled nitrogen implant into the substrate at an angle such that a shadow area is formed adjacent to the oxide material, the nitrogen dose in the shadow area of the active area being less than the amount of the nitrogen dose implanted in the remaining non-shadowed area;

affecting a first mask so that nitrogen ions (N_2^+) to be implanted do not penetrate a masked region; and

affecting a second nitrogen ion implantation by employing a second shadow area inducing means at a temperature sufficient to provide a lesser amount of nitrogen ion dosage in the second shadow area of the active area is less than the amount of nitrogen dose implanted in the remaining non-shadowed area.

2. (Previously Presented) The process of claim 1 wherein said second shadow area inducing means is by angled nitrogen ion implantation at an angle either greater or less than 90° with respect to the surface normal of said semiconductor substrate.

3. (Cancelled)
4. (Previously Presented) The process of claim 2 further comprising affecting an oxidation of the substrate wherein said oxidation is performed at about 900°C under dry conditions.
5. (Previously Presented) The process of claim 2 further comprising affecting an oxidation of the substrate wherein said oxidation is performed at about 800°C under a combination of dry and wet oxidation conditions.
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)
9. (Cancelled)
10. (Previously Presented) A method of implanting ions comprising:
providing a substrate having a first portion, a second portion, and an active area located between the first portion and the second portion, the first portion and the second portion being a shallow trench isolation oxide having an exposed surface extending above the surface of the active area;
performing a first ion implantation at a first angle such that a first shaded area defined by the exposed surface of the first portion and the first angle is exposed to fewer ions than a first unshaded area; and

performing a second ion implantation at a second angle such that a second shaded area defined by the exposed surface of the second portion and the second angle is exposed to fewer ions than a second unshaded area.

11. (Currently Amended) The method of claim ~~[[11]]~~ 10 wherein the first angle is a positive angle with respect to a first axis perpendicular to a plane formed by a surface of the substrate and wherein the second angle is a negative angle with respect to ~~[[a]] the first axis perpendicular to a plane formed by a surface of the substrate.~~

12. (Currently Amended) The method of claim ~~[[11]]~~ 10 wherein the first angle and the second angle are substantially equal in opposing directions.

13. (Currently Amended) The method of claim ~~[[11]]~~ 10 further comprising the step of oxidizing the substrate.

14. (Previously Presented) The method of claim 13 wherein the step of oxidizing is performed by a thermal oxidation process.

15. (Previously Presented) The method of claim 14 wherein the step of oxidizing is performed in an oxygen environment at a temperature of about 800° C.

16. (Currently Amended) The method of claim ~~[[11]]~~ 10 wherein the first ion implantation implants nitrogen ions.

17. (Currently Amended) The method of claim ~~[[11]]~~ 10 wherein the second ion implantation implants nitrogen ions.

18. (Currently Amended) A method of implanting ions in an active area, the method comprising:

providing a substrate having a first raised portion and a second raised portion; ~~the method comprising:~~

performing a first ion implanting at a first angle in the active area; and

performing a second ion implanting at a second angle in the active area;

wherein the first ion implanting implants substantially less ions in a first shaded area formed by the first angle and the first raised portion than other areas of the active area; and

wherein the second ion implanting implants substantially less ions in a second shaded area formed by the second angle and the second raised portion than other areas of the active area.

19. (Previously Presented) The method of claim 18 wherein the first angle is a positive angle with respect to a first axis perpendicular to a plane formed by a surface of the substrate and wherein the second angle is a negative angle with respect to the first axis.

20. (Previously Presented) The method of claim 18 further comprising the step of oxidizing the substrate.

21. (Previously Presented) The method of claim 20 wherein the step of oxidizing is performed by a thermal oxidation process.

22. (Previously Presented) The method of claim 21 wherein the step of oxidizing is performed in an oxygen environment at a temperature of about 800° C.
23. (Previously Presented) The method of claim 18 wherein the first ion implantation implants nitrogen ions.
24. (Previously Presented) The method of claim 18 wherein the second ion implantation implants nitrogen ions.
25. (Previously Presented) The method of claim 18 wherein the area implanted by the first ion implanting and the area implanted by the second ion implanting overlaps.